

Feb. 4, 1969

R. N. WOOD

3,425,615

MULTI-CELL BULK CONTAINER

Filed July 7, 1967

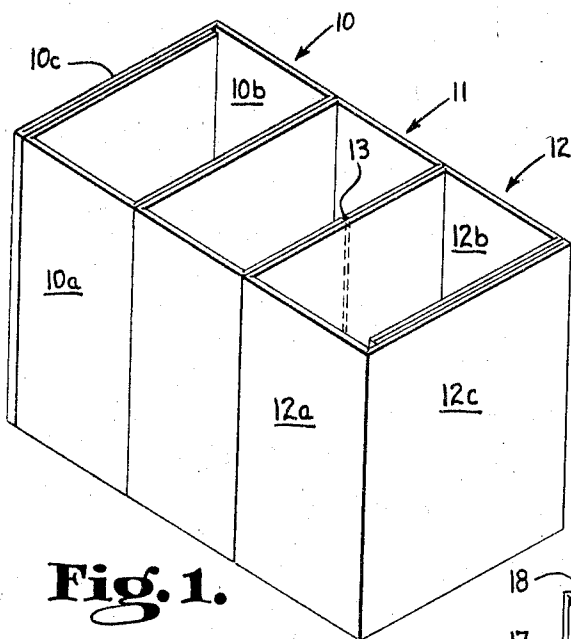


Fig. 1.

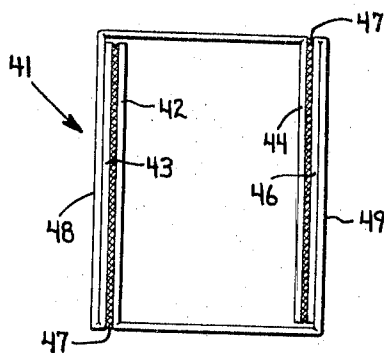


Fig. 6.

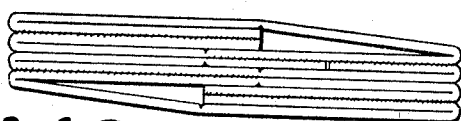


Fig. 3.

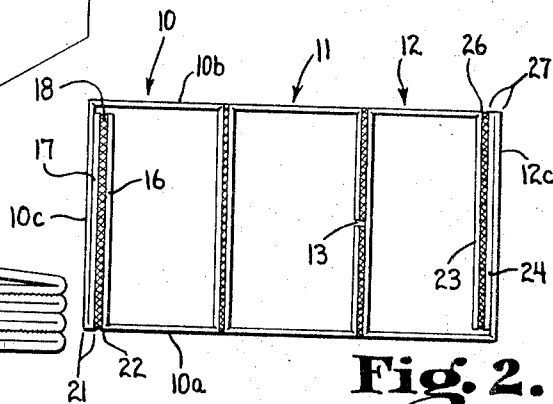


Fig. 2.

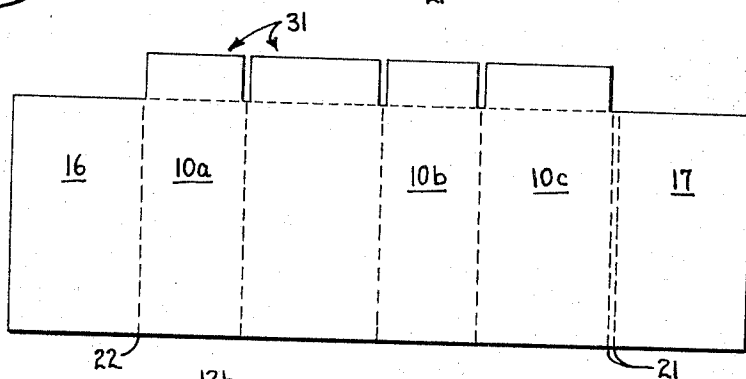


Fig. 5.

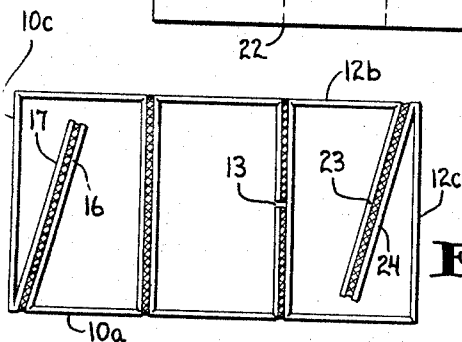


Fig. 4.

INVENTOR.
ROBERT N. WOOD

BY

Woodard, Weikert, Eshardt & Naughton
Attorneys

1

3,425,615

MULTI-CELL BULK CONTAINER

Robert N. Wood, Indianapolis, Ind., assignor to Inland Container Corporation, Indianapolis, Ind., a corporation of Indiana

Filed July 7, 1967, Ser. No. 651,840
U.S. Cl. 229-15

Int. Cl. B65d 5/48

2 Claims

ABSTRACT OF THE DISCLOSURE

A container having one or both ends multi-ply which can be folded into relatively flat configuration, and in which the blank from which the container is erected may be coated continuously over the face of the blank forming the inner surface of the container without interfering with the surfaces of the container to be subsequently glued in assembling the container.

BACKGROUND OF THE INVENTION

Field of the invention.—The invention is in the field of containers formed from corrugated board blanks having one or more reinforced panels and coated or lined interiors.

Description of the prior art.—Various types of multicell containers are used for shipping bulk, flowable materials such as synthetic resins, crude or synthetic rubber, liquid vinyls, frozen foods, etc. These materials have substantial weight per unit volume and the conventional large multi-cell containers (some of the order of six feet in height) utilized have various means for reinforcing the panels of the outer cells to prevent bulging, one such means used widely being metal banding about the body of the container. Usually the separate cells of these multicell containers must be individually erected at the point of use (filling) by the user and then secured together at the point of use to form the final multiple container. Further, in order to accommodate fillings of adhesive, tacky or corrosive materials, the interior of the container, that is, the interior of each individual cell must be provided with a proper coating. Because glue will not adhere to the coated areas, surfaces of the container blank which are to be subsequently glued in completing the erecting or setting-up of the container must either not receive the coating or it must be stripped off the glue areas. Conventional containers, particularly those having one or more panels reinforced or multi-ply to adapt them for multicell use, usually require that some portion of the surface of the blank forming the inner surface of the container be a glue area (for example the manufacturer's joint flap which is a short extension of one of the end or side panels), while the remainder of this blank surface is coated. Since coating is thus not continuous along this surface of the blank, but is interrupted by glue areas, the blanks cannot be fabricated from pre-coated paper roll-stock, but must be cut from uncoated corrugated sheets and then coated on the proper inner surface area portions and glue must be applied to the glue-receiving portions of the surface. The special equipment required to provide this intermittent coating and glue application on a single surface of a container blank is normally not available at conventional corrugated box plants and the prior art containers of the type referred to can be manufactured only at specially equipped locations.

SUMMARY OF THE INVENTION

The present invention is embodied in a container having one or more reinforced panels and is thus suited for use as a multi-cell container. The container, even when

2

forming a multi-cell container can have its individual cell components glued together and then folded into a relatively flat or collapsed contour, thereby obviating gluing together of the individual cells at the point of use. Since the container is thus preassembled, it can be set-up in a much shorter time than is the case where individual cell components must be separately set-up and then glued or banded together. The structure does not have the conventional "manufacturer's joint" (a short flap extending from one panel which overlaps an adjoining panel to close the side panels together along a vertical line) and this source of structural weakness, when the container holds flowable material, is thus eliminated. Further, most importantly, when embodied in a multi-cell assembly or in a single unit container, all of one surface of the blank from which the container is formed may be coated, no glue areas being necessary on this surface, so that the blank sheets may be cut from corrugated board fabricated from pre-coated, paper roll-stock, a matter of considerable production economy.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a multi-cell container formed according to the present invention.

FIG. 2 is a top plan view of the container shown in FIG. 1.

FIG. 3 is a top plan view of the container shown in FIGS. 1 and 2 after gluing of its components but before erection of the container.

FIG. 4 is a top plan view similar to FIG. 2 but illustrating the positions of the inner panels just prior to completion of the erection of the container.

FIG. 5 is the top plan view of a blank from which the end cells of the container of FIG. 1 may be formed.

FIG. 6 is a top plan view of an end cell of the container of FIG. 1 which may be utilized alone as a single cell container.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring initially to FIG. 1, the multi-cell container there illustrated is composed of a series of rectangular tubes 10, 11 and 12 secured together at their adjacent contiguous face panels, by gluing or other suitable means. The intermediate tube 11 may be formed by closing a sheet of corrugated board along the margin line 13. The outer tubes are identical and include side panels 12a and 12b and end panels 12c. The container 10, correspondingly is formed by side panels 10a and 10b and end panel 10c.

As will be evident from FIGS. 1, 2 and 4 the end cell 10 is provided with two, contiguous inner panels 16 and 17 which extend in face-to-face relation and are glued together as indicated at 18. The inner panel 17 is hinged by means of spaced score lines 21 to the adjacent end panel 10c. Similarly, the inner panel 16 is hinged at score line 22 to the adjacent side panel 10a of the cell 10. The hinge for the inner panels provided by the score lines 21 and 22 are adjacent the junction or corner of the end panel 10c and side panel 10a as will be particularly evident from FIG. 4, although the panels 16 and 17 are secured together by glue, the outer face of the inner panel 17 and the inner face of the end panel 10c are not secured or glued together. In identical fashion, the cell 12 is provided with inner panels 23 and 24 which are glued in face-to-face relation, the inner panels being of substantially the same length as the adjacent end panel of the container cell. The inner panel 23 is hinged at score line 26 to the side panel 12b and the inner panel 24 is hinged at the score lines 27 to the end panel 12c. It will be noted that the inner panels are folded into the container and, when

the container is fully erected as shown in FIGS. 1 and 2, the inner panels form a three-ply end wall construction for the container in cooperation with the end panels adjacent to them.

As may be seen in FIG. 3, after assembly and gluing of the components of the container, it may be collapsed into a generally flat configuration for shipment or storage and can be erected or set-up at the point of use, normally at the filling location. FIG. 5 illustrates the blank from which an end cell of the container of FIG. 1 may be formed, the blank being given the same reference numerals with respect to its relevant panel members as the cell 10 of FIG. 1. The blank is provided with top flaps indicated generally at 31 and illustrates that the cell tubes may be provided with such conventional flaps at either or both the top and the bottom of the container, or the container might be closed by means of tray-type lids and bases (not shown) as contemplated for the structure shown in FIG. 1.

While the construction described particularly adapts itself for use in a multi-cell container, as will be evident from FIG. 6, the inner panel reinforcing arrangement can also be utilized in a single cell container. The single cell container 41 of FIG. 6 includes inner panels 42, 43 44 and 46 which are glued together as indicated at 47 and cooperate with the end panels 48 and 49 to provide a three-ply end wall construction for the container.

It should be noted that in both the multi-cell form and the single cell form of the structure of the present invention, the faces of the inner panels secured together are extensions of the outer surfaces of their respective side and end panels. Thus, assuming that the uppermost surface of the blank shown in FIG. 5 will become the inner surface of the container, this complete surface of the blank may be coated with a protective coating and since none of this surface receives glue in the fabricating of the container, no removal of the coating need be accomplished over a glue-receiving area so that the liner forming the coated face of the container blank may be

pre-coated roll-stock and the coating can be accomplished prior to the fabrication of the corrugated sheet from which the blank is cut. Further, the container has no "manufacturer's joint", as such, and is therefore capable of heavier loading as compared to conventional structures.

I claim:

1. A multi-cell bulk container comprising a series of rectangular tubes secured together at their adjacent contiguous face panels, the outer end panels of the container having a multi-ply construction, wherein the improvement comprises providing the outer end panels and one of their adjacent side panels each with an inner panel hinged to its respective panel at the side and end panel junction, said inner panels being folded into their respective tubes and secured together in face-to-face relation to thus extend along their adjacent tube end panels.

2. A multi-cell bulk container as claimed in claim 1 in which said inner panels are of substantially the same length as the length of the adjacent tube end panels to thereby provide a three-ply end wall for the opposite ends of the multi-cell container.

References Cited

UNITED STATES PATENTS

1,217,029	2/1917	Long	229—16
1,823,324	9/1931	Huber	229—15 X
1,999,909	4/1935	Lupton	229—15
2,429,538	10/1947	Wood	229—48 X
2,440,022	4/1948	Salfisberg	229—48
2,491,206	12/1949	Potts	229—15 X
2,761,608	9/1956	Welshenbach	229—48 X
3,348,667	10/1967	Beeby	229—15 X

DAVIS T. MOORHEAD, *Primary Examiner*.

U.S. Cl. X.R.

229—37